

**REMARKS**

Claims 1, 2, 4 and 5 are currently pending in this application. The support for the amendment to Claim 1 has been found in the originally filed specification at page 26, lines 9-17 and in Claim 3. No new matter has been added by this amendment.

***Objection to the Specification***

**The disclosure is objected to because the word “ease” on Page 3, line 4 of the specification had been inadvertently spelled as “easy.”**

The Specification has been amended to correct a typographical error. No new matter has been added.

***Claim rejections under 35 USC § 103***

**Claims 1-5 stand rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Published Patent Application No. 2003/0153887 to Nawata et al. in view of U.S. Patent No. 5,453,458 to Takeuchi et al. (Office Action, page 2)**

The rejection alleges the claims as an obvious combination of the absorbent core of the Nawata water-absorbing resin with the shell polymer portion of Takeuchi et al. In addition to the fact that one of the references discloses technical features, which are present in the other reference, as an impediment for physical combination, it will be shown below that the combination of references does not create a *prima facie* rejection of obviousness.

Specifically, the rejection describes Nawata as teaching a production method for core-shell type absorbent resin particles. The absorbent particles of Nawata are combined as a resin with a fibrous product (such as finely pulverized wood pulp, cotton, cotton linter, rayon, cellulose acetate, and other cellulose-based fibers; and polyamides, polyesters, polyolefins, and other synthetic fibers). In each case, the fibrous product is bound to the adhesive particles using an adhesive binder.

Applicants note that Nawata discloses an absorbent core comprising a combination of a water-absorbent resin and a fibrous product. While Nawata discloses an absorbent core, nothing in Nawata teaches or suggests a shell portion such as those of the claimed invention.

Takeuchi, entitled "Core-shell polymer and plastisol therefrom," discloses a core-shell polymer and *plastisol* including the core-shell polymer. Unlike the claimed invention, Takeuchi nowhere discloses or even teaches a method disclosing core-shell type ***highly liquid absorbent resin particles.***

"Plastisol" is a ***sol paste wherein a powder resin is dispersed in a plasticizer.*** A core-shell type polymer is used as the powder resin in Takeuchi. Takeuchi discloses that a plastisol is preferably used to form a protective coating on outer plates of automobiles. Takeuchi discloses that the plastisol of the invention has excellent fluidity and storability at normal temperatures, and when it is heated to a temperature usually in the range of 100°C to 180°C, and then cooled, the plastisol forms a gel in the form of films or molded articles-having a sufficient strength and toughness. However, unlike the present invention, Takeuchi nowhere discloses or even teaches that excellent liquid absorption property and excellent color (white) are required for the core-shell polymer.

***There is nothing in the combination of references to suggest that the method and plastisol shell used for a resin powder of Takeuchi would enable liquid absorption when used for covering an absorbent core.*** Accordingly, there is no motivation to combine the shell of Takeuchi with the particle core of Nawata, as there would have been no expectation of success in applying the plastisol core-shell polymer of Takeuchi to an absorbent core such as in Nawata.

Furthermore, ***nothing in Nawata suggests the use of a second emulsion polymerization step to create a core-shell particle.*** The Examiner relies on Takeuchi to teach the inclusion of a shell portion. However, ***Takeuchi is directed to particles less than 50 micrometers in size.*** Claim 1 of Takeuchi recites in part:

wherein the shell layer is contained in an amount of 20-50% by weight based on the core-shell polymer, and the core-shell polymer having a weight average particle size of 0.1-50 micrometers.

On the other hand, *Nawata specifically discourages the use of particles smaller than 50 micrometers [0038]:*

[0038] The water-absorbent resin of the present invention should preferably have an average particle diameter of 50-500  $\mu\text{m}$ . It is undesirable for the average particle diameter to be *less than 50  $\mu\text{m}$  because in this case the gaps between the water-absorbent resin particles tend to become narrow and gel blocking is apt to occur.* (emphasis added)

As such, there is no motivation to combine the polymers of Takeuchi with the polymers of Nawata, as there would clearly be *no expectation of success in properly applying the Takeuchi shell to a particle considerably larger than the Takeuchi particles.* Nawata in fact teaches away from a “polymer having a weight average particle size of 0.1-50 micrometers.” Thus it cannot be reasoned now that the two references would logically be combined, since Nawata states that they cannot.

As now amended, Claim 1 relates to a production method of core-shell type highly liquid absorbent resin particles comprising a first step in which a particle core portion is formed by suspension polymerizing an aqueous solution (e) containing (meth)acrylic acid, a crosslinking agent (c) and an anionic surfactant (d) in an amount of 1 to 10 parts by mass with respect to 100 parts by mass of (meth)acrylic acid in a hydrophobic organic solvent (a) containing a nonionic surfactant (b), the anionic surfactant being of the formula I.

Nawata discloses the following anionic surfactants:

[0060] Examples of **anionic surfactants** include fatty acid salts, N-acylamino acid salts, polyoxyethylene alkyl ether carboxylates, polyoxyethylene alkyl phenyl ether phosphoric acid ester salts, polyoxyethylene alkyl ether phosphoric acid ester salts, alkylphosphonates, alkylsulfuric acid ester salts, polyoxyethylene alkyl phenyl ether sulfuric acid ester salts, polyoxyethylene alkyl ether sulfuric acid ester salts, higher alcohol sulfuric acid ester salts, polyoxyethylene fatty acid alkanolamide sulfates, alkylbenzenesulfonates, alkynaphthalenesulfonates, alkylmethyl taurine acid salts, polyoxyethylene alkyl ether sulfonates, and polyoxyethylene alkyl sulfosuccinates.

[0061] Among these surfactants, the **following are preferred**: sorbitan fatty acid esters, polyoxyethylene sorbitan fatty acid esters, polyglycerin fatty acid esters, sucrose fatty acid esters, sorbitol fatty acid esters, polyoxyethylene sorbitol fatty acid esters, polyoxyethylene alkyl phenyl ethers, and other nonionic surfactants.

[0062] The surfactants should be **used preferably in an amount of 0.1-5 wt %, and more preferably in an amount of 0.2-3 wt %**, in relation to the total amount of the aqueous monomer solution.

*Applicants contend that these surfactants do not overlap with the alkenyl group having 8 to 30 carbon atoms or a hydroxyalkyl group having 8 to 24 carbon atoms of the surfactants of Formula I.*

Similarly, Takeuchi discloses anionic surfactants in col.3, lines 48-54 as:

When multi-stage emulsion polymerization is employed to prepare core-shell polymer, there may be used, as well known, as an emulsifier, an anionic surfactant such as **sodium dodecylbenzene sulfonate or sodium lauryl sulfate**; an nonionic surfactant such as poly(oxyethylene)nonylphenyl ether or sorbitan monolaurate; or a cationic surfactant such as octadecylamine acetate.

*Like Nawata, these surfactants of Takeuchi do not overlap with the surfactants of the instant Formula I.*

As such, even assuming *arguendo* that the references could be combined, the combination does not teach or suggest the claimed anionic surfactant (d); the combination of two surfactants (b) and (d), nor the amount of surfactant (d) with respect to (meth)acrylic acid, among other differences. Thus a *prima facie* rejection of obviousness cannot be made with these two references alone.

Accordingly, reconsideration and withdrawal of all rejections under 35 U.S.C. § 103 are respectfully requested.

In view of the amendments and remarks made herein, the application is believed to be in condition for allowance. Favorable reconsideration of the application and prompt issuance of a Notice of Allowance are respectfully requested. Please charge any required fee or credit any overpayment to Deposit Account No. 04-1105, under Order no. 80364 (47762).

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Respectfully submitted,

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